

**INTERPRETATION IC 62.1-2013-2 OF
ANSI/ASHRAE STANDARD 62.1-2013
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY**

Approved: January 25, 2015

Request from: Dennis A. Stanke (Dstanke47@gmail.com), N4959 Oakview Drive, West Salem, WI 54669.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 62.1-2013, Sections 6.1.2 and 6.3, regarding the Indoor Air Quality (IAQ) Procedure.

Background No. 1:

“6.1 General. The Ventilation Rate Procedure, the IAQ Procedure, and/or the Natural Ventilation Procedure shall be used to meet the requirements of this section. ...

6.1.2 IAQ Procedure. This performance-based design procedure (presented in Section 6.3), in which the building outdoor air intake rates and other system design parameters are based on an analysis of contaminant sources, contaminant concentration limits, and level of perceived indoor air acceptability, shall be permitted to be used for any zone or system.”

The “and/or” phrase in Section 6.1 requires that either only one or all three of the ventilation-design procedures listed must be used to comply with (meet the requirements of) Section 6.1, which includes the provisions in all relevant subsections. In other words, ventilation-system designs comply with Standard 62.1-2013 if all of the requirements of Section 6.2 (Ventilation Rate Procedure), Section 6.3 (Indoor Air Quality Procedure) or Section 6.4 (Natural Ventilation Procedure) are met, or if all of the requirements of Section 6.2 (Ventilation Rate Procedure), Section 6.3 (Indoor Air Quality Procedure) and Section 6.4 (Natural Ventilation Procedure) are met. This effectively requires that the requirements of Section 6.4 must be met if both Section 6.2 and Section 6.3 requirements are applied to the same system, even though Section 6.3.5 permits combined use of the VRP and IAQP without the use of the NVP.

Furthermore, Section 6.1.2 permits the minimum outdoor air intake flow required for any zone or system to be determined using the requirements found in the IAQ Procedure of Section 6.3, which in some cases allow compliance with some provisions of Section 6.2.

Interpretation No. 1: Compliance with the requirements of Section 6.3 alone, or in conjunction with some requirements of Section 6.2, offers one valid path to compliance with the ventilation requirements of the Standard.

Question No. 1: Is this interpretation correct?

Answer No. 1: Yes

Comments: It was always the intent to provide alternative pathways to achieve adequate indoor air quality.

Background No.2:

“6.3 Indoor Air Quality (IAQ) Procedure. Breathing zone outdoor airflow (V_{bz}) and/or system outdoor air intake flow (V_{ot}) shall be determined in accordance with Sections 6.3.1 through 6.3.5.”

As written with “and/or” as part of the normative language, one of three unique alternative compliance combinations seems to be required:

- 1) Both breathing zone outdoor airflow (V_{bz}) and system outdoor air intake flow (V_{ot}) must be determined in accordance with Section 6.3.1-6.3.5 (i.e., V_{bz} per IAQP and V_{ot} per IAQP). However, the mass balance analysis required in Section 6.3.4.1 applies when finding zone outdoor airflow (V_{bz}) but it does not seem to apply when finding outdoor air intake flow (V_{ot}), especially in multiple-zone systems. So, in practice, it doesn't seem possible for all systems to comply with the standard by finding both V_{bz} and V_{ot} using the IAQP.
- 2) Breathing zone outdoor airflow (V_{bz}) must be determined in accordance with Section 6.3.1-6.3.5, while outdoor air intake flow (V_{ot}) must be determined some other unspecified way, such as by complying with the Ventilation Rate Procedure (i.e., V_{bz} per IAQP and V_{ot} using an unspecified approach, which could be the VRP). This alternative combination seems possible.
- 3) Breathing zone outdoor airflow (V_{bz}) must be determined in some unspecified way, presumably using the Ventilation Rate Procedure, while outdoor air intake flow (V_{ot}) must be determined in accordance with Section 6.3.1-6.3.5 (i.e., V_{bz} using an unspecified approach such as the VRP and V_{ot} per IAQP). However, the mass balance analysis required in Section 6.3.4.1 to find zone outdoor airflow (V_{bz}) does not seem to apply when finding outdoor air intake flow (V_{ot}), especially in multiple-zone systems. So, in practice, it doesn't seem possible to comply with the standard by finding V_{bz} using an unspecified approach (which could be the VRP) and V_{ot} using the IAQP.

Note: The NVP does not include specific requirements related to either breathing zone outdoor airflow or system outdoor air intake flow, so it is not considered when determining compliance with the IAQP.

Even though the language of the Standard allows three unique compliance alternatives within the IAQP, only one of these alternatives (item 2 above) seems to offer a reasonable path for compliance. The other alternatives must be excluded due to unclear, impractical or impossible calculation requirements.

Interpretation No.2: Compliance with Section 6.3 requires that breathing zone outdoor airflow (V_{bz}) be determined using the IAQP, and that outdoor air intake flow (V_{oi}) be determined using an unspecified procedure, thereby permitting the use of the VRP, specifically, the equations in Section 6.2.3, 6.2.4 and 6.2.5.

Question No. 2: Is this interpretation correct?

Answer No. 2: Yes